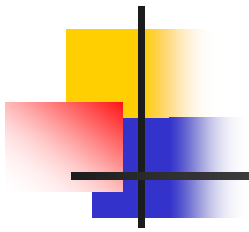


Good Practices and Policies for Promoting Knowledge-Based Development



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Economic Cooperation and Integration Division
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PART 1.

POLICIES PROMOTING KNOWLEDGE-BASED DEVELOPMENT



Knowledge-based Development and Knowledge-oriented Policies

- **Globalization and knowledge-based development**
 - The production, distribution, and use of knowledge are the main drivers of growth, wealth creation and employment
 - The production, distribution, and use of knowledge have also become global phenomena: emergence of global knowledge-based value chains
 - Development strategies risk being non-sustainable unless they are oriented towards developing and promoting knowledge-based economic activities
- **Changes in the policy paradigm**
 - Policy needs to take into account and address the specificities of the knowledge-based economy: "knowledge-oriented policies"/ ("knowledge-oriented industrial policy")
 - This is a new brand of policies targeting structural change through mechanisms that hinge on the driving forces of knowledge and incorporating a systemic understanding of the policy rationale



Knowledge as an Economic Concept

- **Traditional treatment of knowledge as a homogeneous public good (similar to information)**
 - Non-rivalrous consumption of knowledge – the fact that the consumption of knowledge by one individual does not reduce the benefits available for subsequent consumption by another one
 - Non-excludability – once the good/knowledge is produced, it is accessible to all potential consumers at zero cost
- **Later: heterogeneous nature of knowledge (not always a public good!)**
 - “Codified” knowledge (that contained in publications, documents, and other sources): presented in a standardized format to facilitate dissemination (e.g. results of academic research)
 - “Tacit” knowledge (skills, various forms of know-how, including organizational and managerial know-how): personalized and not subject to codification (e.g. entrepreneurial, managerial and organizational skills)



Knowledge as an Economic Concept (cont.)

- **Stocks and flows of knowledge**
 - Stocks: knowledge can accumulate over time
 - Flows: newly generated pieces of knowledge
- **The role of knowledge in the production process.**
 - Knowledge (as stocks and/or flows) participates as a factor input both in its own generation and in the production of other goods and services
 - With respect to the production of other goods and services, knowledge rarely acts as a factor input on its own; it rather incites complementarities, in combination with other factor inputs
 - Similarly to other forms of capital, knowledge is subject to becoming obsolete and less productive. Investing in new knowledge is an inherent feature of the process of knowledge generation.



The “Knowledge Spillover”

- **Knowledge spillover is a specific feature of knowledge as an economic good**
 - = The possibility that the dissemination of a specific piece of knowledge may decrease the value of that knowledge for those initially in hold of the knowledge
 - The incidence of knowledge spillovers has important implications for the process of knowledge generation as the latter generally implies large and risky investments over a sufficiently long period of time.
 - Knowledge spillovers may prevent investors in knowledge from the possibility of appropriating the benefit of the investment
- **The externalities of the knowledge spillover are equivalent to a knowledge-related market failure**
 - Private costs of knowledge generation may exceed the social gains/cost of capital: in the absence of policy intervention, there will be underprovision of knowledge generation /innovative entrepreneurship
 - Addressing the externalities of the knowledge spillover is an important rationale for policy intervention



Addressing the knowledge spillover

- **The role of policy:**
 - To contribute to the establishment of an enabling environment for entrepreneurs in innovation to achieve a fair return on their investment – facilitate appropriability by those who invest in knowledge/innovation
- **Policy interventions seek to secure the appropriability of knowledge-related investment**
 - They affect the speed of the knowledge spillover, establishing a temporary monopoly niche to the investor
 - Traditionally this has been associated with the legal protection of the intellectual property rights of innovating entrepreneurs
 - In addition, there are mechanisms that do not revert to legal protection



Knowledge-oriented Policies: Key Underlying Assumptions

- **Consistent with evolutionary economics:**

- The economic system is in a process of continuous evolution and change
- No steady state in the economy – multiple equilibria
- Highly uncertain outcomes of economic behaviour
- The socio-economic context matters
- Economic performance is prone to systemic failures (such as coordination, institutional, framework, network failures)
- Innovation requires interaction and technological cooperation among firms and access to new knowledge through collaborative networks

Rationale and Objectives of Knowledge-Oriented Policies

Traditional industrial policy	Knowledge-oriented policy
Achieve social welfare gains	Foster dynamic competitiveness
Promote specific types of development	Help stakeholders jointly achieve mutually agreed goals
Economies of scale	Economies of scope
Address and correct market failures	Address knowledge-specific and systemic failures. Enhance connectivity between agents/stakeholders.
Address market distortions	Facilitate the smooth operation of markets
Mitigate negative implications of externalities	Help discover externalities and relevant remedies
Establish “rule(s) of the game” for others to play	Help market agents in jointly establishing acceptable “rule(s) of the game”
Target a change in agents’ behaviour/performance	Create an enabling environment for change in behaviour to happen
Enhance performance of economic agents	Facilitate risk sharing among agents and stakeholders



The Rationale for Policy Intervention in the Knowledge-based Economy (cont.)

- **Broader in scope but more modest in ambition than traditional industrial policy**
 - Policy needs to address a complex system of agents/stakeholders and their interactions
 - Outcomes are uncertain (multiple equilibria)
 - The state does not possess superior knowledge than market agents; it is only one of many “stakeholders” with whom it needs to work together
 - The state has superior capacity to coordinate and policy should draw on this
- **Knowledge-oriented policy is “soft” and non-interventionist**
 - The language of policy objectives is toned down (to “facilitate”, “foster”, “encourage”, “promote”, “assist”, “establish an enabling/conducive environment”, “coordinate”)
 - Actions are aligned with the direction of market forces, facilitating – rather than counteracting – the smooth operation of markets (“pro-market activism”)



Knowledge-oriented Policies: Targets and Expected Effects

Traditional industrial policy	Knowledge-oriented industrial policy
Factor inputs; outputs Firms, industries Specific sectors of the economy (vertical actions) The supply side of the economy/ producers Responses traceable to agents Distinctive response Measurable/quantitative responses to policy intervention	Systemic interactions Networks, systemic linkages Specific behavioural aspects across sectors (horizontal actions) Both the supply and the demand sides of the economy/ producer-user cooperation Systemic responses; behavioural additionalities Range of possible responses Some responses qualitative in nature



Systemic Policy Aspects in Promoting Knowledge-based Development

- Knowledge-oriented policies are mostly directed towards systemic behavioural aspects such as interactions, linkages, relationships, etc. among agents and stakeholders
- Typically, knowledge-oriented policies are “horizontal”, cutting across firms, industries and sectors, in contrast to traditional “vertical” policies, targeting specific firms of industries (such as “picking winners” or “supporting losers”)
- Accordingly, policies target “systemic” failures, involving large number of agents/stakeholders and complex links and interactions among them
 - Failures in social institutions (academic institutions, public bodies, etc.)
 - Network failures (poor interactions among stakeholders)
 - Capability failures (inability of agents to act in their own best interests)
 - Framework failures (difficulties in the broad framework conditions)



The Instruments of Knowledge-oriented Policy/ Topics Addressed at the Conference

- **Categories of policy instruments in relation to their knowledge functions:**
 - Instruments supporting/facilitating the generation of knowledge. Can be differentiated depending on the type of knowledge (codified, tacit, other).
 - Instruments supporting/facilitating the accumulation of knowledge (codified, tacit, other).
 - Supporting/facilitating the flows of knowledge (codified, tacit, other).
 - Instruments promoting dissemination of knowledge.
 - Instruments promoting connectivity and coordination through knowledge sharing among stakeholders.
 - Instruments supporting/facilitating risk sharing through knowledge sharing among stakeholders.
- **Financial; non-financial; hybrid instruments**



Financial Instruments to Support the Generation of Knowledge

- **Based on financial support – public grants of various forms**
- **Main function: address uncertainties in the process of generation of new knowledge**
- **Specific features of knowledge-oriented instruments compared to traditional R&D policy**
 - Shift from the direct institutionalized financial support to R&D institutions to the differentiated financing of specific R&D and innovation projects.
 - Project financing is often contingent on systemic networking among the participants or requires that linkages be established for the project to start (e.g. linkages between researchers from different institutions, between different R&D institutions, between R&D institutions and industry, etc.).
 - Project financing is usually allocated on a competitive principle through a selection among competing bids, on the basis of pre-specified criteria.
 - Apart from project financing, specific instruments involving a financing component have been developed to promote and support networking, linkages, partnerships, cooperation and connectivity among stakeholders of innovative ventures.



Financing Instruments Addressing Risks, Uncertainties and/or Knowledge Externalities

- Based on financial support – public grants of various forms
- Promote connectivity and risk sharing among stakeholders through knowledge sharing.
- Specific features:
 - Most instruments support start-up firms and ventures, not established and running businesses
 - The provision of funding is often organized on a competitive principle, through a selection among competing bids, on the basis of pre-specified criteria.
 - Financial support is of one-off nature to avoid lock-in into unviable ventures (“winners” are not selected in advance but ex-post, through survival on the market)
 - Public grant financing is especially instrumental in the pre-investment phase when the uncertainties are the highest
 - Most of the financing instruments contain by design built-in market elements and mechanisms (“pro-market activism”) and an appropriate incentive structure.
 - Addressing stakeholder connectivity is a key element (as implementation usually involves different types of stakeholders)
 - Some instruments specifically target the strengthening of industry-science linkages
 - In some policy initiatives, the state takes up a leading role not only as a source of funding but also as a coordinator, helping in bringing together private stakeholders and in pooling financial resources for projects of joint interest (fundraising)



Non-financial Policy Mechanisms Dealing with Uncertainty and/or Knowledge Externalities

- No direct public financial support
- Rely on the superior coordinating capacity and convening power of the state
- The role of the public sector is not in providing financing support but in systemic coordination and facilitating linkages between potential key stakeholders (“information brokerage”)
- **Examples:**
 - Organization and/or support to R&D and technology oriented forums facilitating linkages among stakeholders
 - Public efforts and interventions to facilitate networking among potential partners from industry and/or R&D institutions
 - “Innovation intermediary” services that facilitate connectivity among stakeholders (e.g. technology transfer offices at universities)
 - Public knowledge services (support to the learning by entrepreneurs; support to the development of institutions providing advisory and technical services; awareness raising campaigns, etc.)



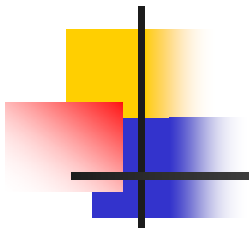
Hybrid Policy Tools

- **Incorporate a combination of policy instruments and perform different knowledge functions**
- **Seed-and-breed support institutions (e.g. business incubators) are typical examples:**
 - Combine financial, in-kind and/or other forms of support (e.g. the provision of coaching, consulting or administrative services)
 - Admission to the incubator is usually conditioned on a sound business plan and may include other criteria (e.g. the development of an innovative product or the commercialization of intellectual property).
 - Support is of one-off nature: at some point firms are expected to grow out of the incubator and take care of themselves; those that fail to achieve financial viability within the established time limits will exit the market
 - Perform important knowledge-centered function: contribute to the accumulation and diffusion of knowledge, especially entrepreneurial and managerial knowledge; facilitate knowledge sharing among incumbents; help in connectivity and networking both within the institution but also with the outside environment.



Hybrid Policy Tools (cont.)

- **Public-private partnerships (PPPs): address knowledge and coordination externalities**
 - A broad notion denoting various businesses operated through an agreement between the government and one or more private sector companies
 - Designing and running a PPP implies continuous knowledge- and information-sharing among the partners
 - By overcoming information and knowledge asymmetries among potential stakeholders PPPs help in setting up projects that would not have been in place in the absence of the policy intervention
 - Embody the “pro-market activism” approach: while risk is shared, the private sector entrepreneurship is usually leading in the venture
 - There is scope for public sector entrepreneurship in organizational experimentation



PART 2.

**PROMOTING
KNOWLEDGE-BASED
DEVELOPMENT THROUGH
INTERNATIONAL
COOPERATION**



The UNECE and its Mission

- **The UNECE: one of five UN regional commissions**
- **Mission: to facilitate economic development and integration of Europe.**
- **Membership covers 56 states: all European, Caucasian and Central Asian countries, the United States, Canada and the State of Israel.**
- **Main Sub-programmes of work:**
 - **Environmental policy**
 - **Sustainable energy**
 - **Transport**
 - **Statistics**
 - **Trade**
 - **Economic Cooperation and Integration**



The UNECE Sub-programme on Economic Cooperation and Integration

- **Mission: To promote a policy, financial and regulatory environment conducive to economic growth, innovation, knowledge-based development and higher competitiveness of countries and businesses in the UNECE region**
- **Main thematic areas:**
 - innovation and competitiveness policies
 - entrepreneurship and enterprise development
 - financing innovative development
 - promoting public-private partnerships
 - commercialization and protection of intellectual property rights



Main Principles of UNECE Work

- The Committee on Economic Cooperation and Integration (CECI) is the intergovernmental body that oversees the work on promoting knowledge-based development:
- Work is organized through Teams of Specialists and expert networks
- CECI serves as a platform for policy dialogue, exchange of experience and good practices among policy makers and other stakeholders in the UNECE region
- A broad multi-stakeholder policy dialogue through expert meetings, policy seminars, conferences, etc. with the participation of government experts, business and academic communities and NGOs:
- Drawing on this dialogue, CECI develops guidelines, synopses of good practices and policy recommendations for governments
- This policy-oriented work provides a basis for demand-driven policy advisory services and capacity-building activities in requesting countries

UNECE Promotes Knowledge-based Development through International Cooperation



- International cooperation can support knowledge-based development through the cross-border pooling of joint efforts
- Providing a forum for high-level international policy dialogue and exchange of experience and good practices supporting knowledge-based development
- Promoting international cooperation on equal footing between all stakeholders: governments, the business community, academic institutions, NGOs, etc.
- Developing practical solutions (practical guidelines, policy recommendations, toolkits) to important policy issues related to knowledge-based development
- The main focus of these activities is on countries with economies in transition; however UNECE seeks to generate value to all member states

The Role of the UNECE in Promoting Knowledge-based Development

United Nations Economic Commission for Europe

United Nations Economic Commission for Europe

Creating a conducive environment for higher competitiveness and effective national innovation systems.

Lessons learned from the experiences of UNECE countries

Financing Innovative Development

Comparative Review of the Experiences of UNECE Countries in Early-Stage Financing



UNITED NATIONS
New York and Geneva, 2007



UNITED NATIONS
New York and Geneva, 2007

The role of the UNECE in promoting knowledge-based development

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GUIDEBOOK

**ON
PROMOTING
GOOD GOVERNANCE
IN
PUBLIC-PRIVATE PARTNERSHIPS**

**DEVELOPING
ENTREPRENEURSHIP
IN THE
UNECE REGION**

*Country experiences
in reducing barriers
to enterprise development*



UNITED NATIONS
New York and Geneva, 2008



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New York and Geneva, 2008



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Европейская экономическая комиссия
Организации Объединенных Наций

ЕВРОПЕЙСКАЯ ЭКОНОМИЧЕСКАЯ КОМИССИЯ ОРГАНИЗАЦИИ
ОБЪЕДИНЕННЫХ НАЦИЙ

**КОМПЕНДИУМ ПЕРЕДОВОЙ
ПРАКТИКИ В ОБЛАСТИ ПООЩРЕНИЯ
РАЗВИТИЯ, ОСНОВАННОГО НА
ЗНАНИЯХ**

**ПРАВОВЫЕ АСПЕКТЫ
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*В ЦЕНТРАЛЬНОЙ АЗИИ***

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ОРГАНИЗАЦИЯ ОБЪЕДИНЕННЫХ НАЦИЙ

Нью-Йорк и Женева, 2008 год



ОРГАНИЗАЦИЯ ОБЪЕДИНЕННЫХ НАЦИЙ



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**Policy Options
and Instruments for Financing
Innovation:**

**A Practical Guide to
Early-Stage Financing**

**ENHANCING THE INNOVATIVE
PERFORMANCE OF FIRMS:**

***POLICY OPTIONS AND PRACTICAL
INSTRUMENTS***



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